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(71) Applicant: TELEFONAKTIEBOLAGET LM ERICSSON (publ) [SE/SE]; S–126 25 Stockholm (SE).

(72) Inventors: WILLEHADSON, Stefan; Spetsvägen 22, S–757 57 Uppsala (SE). DANNE, Anders; Kastrupgatan 12, S–164 41 Kista (SE). GABRIELSSON, Jan; Fjärdhundragatan 62, S–753 35 Uppsala (SE).

(74) Agent: ERICSSON RADIO SYSTEMS AB; Common Patent Dept., S–164 80 Stockholm (SE).

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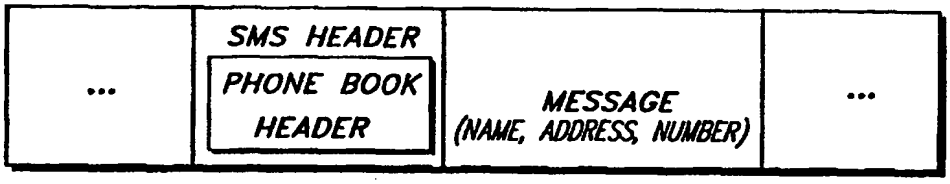

(57) Abstract

Method and apparatus for altering the phone book entries of a cellular phone are disclosed. In accordance with the present invention, standard short message service messages are used to transmit phonebook entries to a cellular phone. The short message service entries are modified in that the short message service header includes a tag identifying the message as a phone book entry. The mobile station receiving the short message service message reads the short message service header tag identifying the message as a phone book entry and automatically decodes the phone book fields and enters them into the standard phone book memory of the mobile phone. The present invention is also employable with standardized electronic business card technology.

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ELECTRONIC BUSINESS CARD HAND-OVER

FIELD OF THE INVENTION

The invention relates to telecommunications. More particularly, this invention relates to the transmission and storage of telephone numbers by mobile stations.

BACKGROUND OF THE INVENTION

Cellular phones have become increasingly popular. Today, these cellular telephones often contain memory maps that permit the user to enter information including phone numbers and notes about frequently called persons. Such memories may be similar to the ones mapped in Figure 1. There, the cellular phone is equipped with EEPROM containing names, phone numbers, and notes for frequently called numbers. Using this map, a user can retrieve on the display of their mobile phone any of the frequently called phone numbers by name, number, and notes.

For example, in Figure 1, the user has entered the name "Bill" and phone numbers for Bill's home and work at EEPROM address locations OOOOOO and OOOOA4, respectively. The use of such EEPROM maps for maintaining phone books and mobile phones is well-known. In addition, various types of derivations and modifications to the memory map for the mobile phone phone book are also well-known.

Using the mobile phone, and the memory map of Figure 1, a user can modify the phone book loaded in the mobile phone. This is usually done by manually entering a phone book mode of the mobile phone by pressing certain of the buttons on the face of the phone. Thereafter, the phone user can enter new names, phone numbers, etc. into the phone book memory map, or can change or delete data already in the map. In this way, the user can have at the user's ready-disposal, frequently dialed numbers.

Another currently-available feature of the present mobile phones is the ability to transmit and receive SMS (short message service) messages. Using this system (and similar systems like it) an originating caller can dial a phone number to leave a short alpha numeric message on the display of a recipient mobile phone. This feature has been used in the past to communicate phone numbers to a recipient mobile phone user, such as is shown in Figure 2. In that example, the recipient mobile phone user has been informed via the SMS service that "Bill has a new number," namely 555-3333. This is relevant to the mobile phone phone book memory map of Figure 1 in that the recipient user can, upon receipt of the SMS message indicating the new phone number, enter the new phone number in the memory map of Figure 1 via the data entry mode of the mobile phone of Figure 2.

Both storage of phone book entries in memory maps and the short message service are both fairly standardized for cellular phones.

Two possibilities thus exist for a phone user to receive information about a frequently called phone number and enter that phone number into the recipient phone user's mobile phone. First, the informing party can tell the recipient phone user verbally or in writing about a phone number. The recipient phone user can then write the number down, or mentally note the number, and later enter the number in the recipient phone in order to add it to the phone book memory map of Figure 1. Alternatively, the informing party can via the short message service, send information about a name, phone number, etc. to the recipient mobile phone user, who can then manually enter the name and phone number in the memory map phone book of the recipient user's mobile phone of Figure 1.

The problem with both of the above methods of getting new phone entries into the memory map of the mobile phone is that the user of the phone must manually enter the information into the phone book, regardless of how the information is received.

SUMMARY OF THE INVENTION

The present invention eliminates the requirement of the user to manually enter new phone book entries into the memory map of Figure 1. This is accomplished by tagging short message service messages with a header describing the information as a new phone book entry. The mobile phone then receives the message, and based on the header, automatically adds it to the mobile phone phone book. Alternatively, after receiving the short message

service phone number with the header, the mobile phone can request the user to authorize the phone to automatically add the phone number to the mobile phone phone book.

In accordance with another embodiment of the invention, standardized electronic business cards are sent via the short message service, with an appropriate header describing the electronic business card as a phone book entry. Upon receipt of the electronic business card with the appropriate header, the mobile phone automatically adds the electronic business card information to the phone book memory map.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages and objects of the present invention will be described in detail with reference to the accompanying drawings, in which:

FIGURE 1 is a schematic drawing of a prior art memory map for a phone book of a mobile phone;

FIGURE 2 is a prior art mobile phone displaying a short message service message;

FIGURE 3 is a schematic diagram of fields in a short message service message according to the prior art;

FIGURES 4 and 5 are fields in a short message service data transmission in accordance with the present invention; and

FIGURE 6 is a schematic diagram of an example cellular system employing the short message service used by the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Figure 6 illustrates a cellular system employing a short message service in accordance with the present invention. In this system, any number of mobile stations, MS1, MS2, etc., communicate with each other and with public telephone networks via wireless transmissions to a base station BS1 in their general vicinity. The base station BS1 is one base station of several such stations, BS1, BS2, etc., that communicate with and are controlled by a base station controller BSC. The base station controller communicates with a mobile switching center MSC, which switches mobile transmissions to and from mobile stations and to and from various telephony networks. The mobile switching center MSC can receive, from time to time, so-called short message service messages. These messages are alpha numeric messages that are destined for mobile stations which can display the messages on their respective displays. When a short message service message request is received by a mobile switching center MSC, the MSC transfers the request to a multimedia message exchange 12. The functionality of the multimedia message exchange 12 is known, an example of which may be seen in U.S. Patent No. 5,497,373, to Hulen, entitled "Multimedia Interface," which is incorporated herein by reference.

The multimedia message exchange 12 incorporates a short message service server 14, which is specifically designed to handle short message service requests.

When a short message service message is to be delivered to a mobile station, the SMS server 14 via the multimedia message exchange 12 relays the message through the mobile switching center MSC, the base station controller BSC, the base station BS1, to the appropriate mobile station MS1. The short message assumes a traditional format that is known in the art, and is provided in simplified form in Figure 3. As shown in Figure 3, the SMS message is identified by an SMS header and an associated message to be displayed in alpha numeric format on the display of the mobile station MS1.

In accordance with the present invention, the short message service server 14 provides a short message service message to a mobile station containing a tag sent within the SMS header describing the message as a phone book entry. An example of a simplified SMS message in accordance with the present invention is shown in Figure 4 in which the SMS header includes a phone book header identifying to the mobile station that the following SMS message contains a phone book entry. In the example of Figure 4, the phone book entry is simply a name, address, and phone number, but other more or less detailed messages can be included, depending upon the type of phone book memory map (Figure 1) that is provided in the mobile station. The tag (phone book header) shown in Figure 4 instructs the mobile station receiving the message

to automatically add the message to the built-in phone book or to request the user to authorize it to do so.

Figure 7 illustrates an example embodiment of a mobile station MS1, which helps in understanding how the mobile station processes the short message service messages containing the phone book tags. The mobile station MS1 contains a transmitting part 20 for transmitting over the antenna, and a receiving part 21 for receiving communications (such as SMS messages) from the antenna. The transmitting part 20 has an associated microphone 22 for the user to speak into the mobile station MS1. Correspondingly, the receiving part 21 has an associated speaker 24 and an associated display 25. The display 25 is primarily employed by the receiving part 21 to display SMS messages in alpha numeric format. A processor 23 is also included in the mobile station MS1 for communication with the transmitting part 20 and receiving part 21. The processor 23 can receive SMS messages and decode the headers to identify phone book tags (Figure 4) associated with the present invention. Once identified, the processor 23 can decode the message of Figure 4 (which may be in a standard format such as "phone book-entry-header: <name> <address> <number>") and thereafter load the appropriate information into EEPROM 26, and specifically into the phone book map 27 corresponding to that shown in Figure 1.

In an alternative embodiment, the present invention tags short message service messages with a header identifying the message as a standardized electronic business card. Standardized electronic

business cards are known, as described in the publication "vCard and vCalendar" by Internet Mail Consortium. In particular, these electronic business cards carry directory information such as name, addresses, (business, home, mailing, parcel), telephone numbers, (home, business, fax, pager, cellular, ISDN, voice, data, video), e-mail addresses, Internet URL's, graphics, and geographic and time zone information. In accordance with the present invention, these electronic business cards can be sent in the same way as phone book entries via the SMS messaging system. As shown in Figure 5, the electronic business cards will be forwarded via the SMS system using an SMS electronic card header tag ("vCard") in the SMS header, together with an associated message containing the standardized business card information. When the mobile station MS1 receives the SMS message of Figure 5, it recognizes the business card as a standardized electronic business card by the vCard header tag and handles the entry of the business card information into the phone book of the mobile station automatically or upon a prompt by the user.

Using the tagging of short message service messages to identify to a mobile station when new phone book entries or changes to phone book entries are being transmitted, the mobile station can automatically handle the entry of the phone book entries into the standard phone book memory of the mobile station. This is a convenient way to share and handle information on the phone by making it possible to automatically send, receive, and handle the phone book entries and electronic business cards. The present

method also is cost-effective to implement since it employs standard short message service formats with current phones (modified in accordance with the present teaching to reorganize the phone book tags, read the associated phone book data, and automatically load the data into phone book memory) and current phone book memories. No system changes are required.

While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not to be limited to the disclosed embodiments, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

WHAT IS CLAIMED IS:

1. A mobile phone, comprising:

a transmitter part for sending communications;

a receiver part for receiving communications including short message service messages having phone book headers and attached phone book information;

a memory for storing the phone book information in fields of the memory;

a processor for reading a received short message service message, recognizing the received message as a containing phone book information based on the phone book header, and automatically storing the phone book information in the received message into appropriate fields of the memory.

2. A mobile phone according to claim 1, further including:

a user data entry device to prompt the processor, based on a user's manual data entry, to store other phone book information other than that received by the short message service messages.

3. A mobile phone according to claim 1, wherein the processor stores the phone book information from the received message and the other phone book information from the user's manual data entry in the same memory fields.

4. A mobile phone, comprising:

a transmitter part for sending communications;

a receiver part for receiving communications including short message service messages having phone book headers and attached phone book information;

a memory for storing the phone book information in fields of the memory;

a processor for reading a received short message service message; recognizing the received message as a containing phone book information based on the phone book header, prompting a user to select whether the phone book information should be automatically stored; and if the user so selects, then automatically storing the phone book information in the received message into appropriate fields of the memory.

5. A mobile phone according to claim 4, further including:

a user data entry device to prompt the processor, based on a user's manual data entry, to store other phone book information other than that received by the short message service messages.

6. A mobile phone according to claim 4, wherein the processor stores the phone book information from the received message and the other phone book information from the user's manual data entry in the same memory fields.

7. A method of storing phone book information in a mobile phone, comprising the steps of:

receiving a short message service message containing a header identifying a following message as containing an automatic phone book entry;

reading the header and identifying the message as an automatic phone book entry based on the header;

reading the following message and parsing the automatic phone book entry into phone book information fields, and

automatically storing the automatic phone book entry in a memory at memory fields corresponding to the phone book information fields of the parsed automatic phone book entry.

8. A method according to claim 7, further including:

receiving a manual phone book entry from a user input device, the manual phone book entry also containing the phone book information fields, and

storing the manual phone book entry in the same memory at the same memory fields corresponding to the phone book information fields.

9. A method of storing phone book information in a mobile phone, comprising the steps of:

receiving a short message service message containing a header identifying a following message as containing an automatic phone book entry;

reading the header and identifying the message as an automatic phone book entry based on the header;

reading the following message and parsing the automatic phone book entry into phone book information fields;

prompting a user to select whether automatic storing of the phone book information fields is desired, and

if the user selects automatic storing, then automatically storing the automatic phone book entry in a memory at memory fields corresponding to the phone book information fields of the parsed automatic phone book entry.

10. A method of storing phone book information according to claim 9, further including

receiving a manual phone book entry from a user input device, the manual phone book entry also containing the phone book information fields; and

storing the manual phone book entry in the same memory at the same memory fields corresponding to the phone book information fields.

EEPROM MAP

ADDRESS	NAME	PHONE#	NOTE
000000	BILL	555-5555	HOME
0000A4	BILL	555-1111	WORK
00018H	KAREN	555-2222	AFTER 5PM
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

Fig.1

PRIOR ART

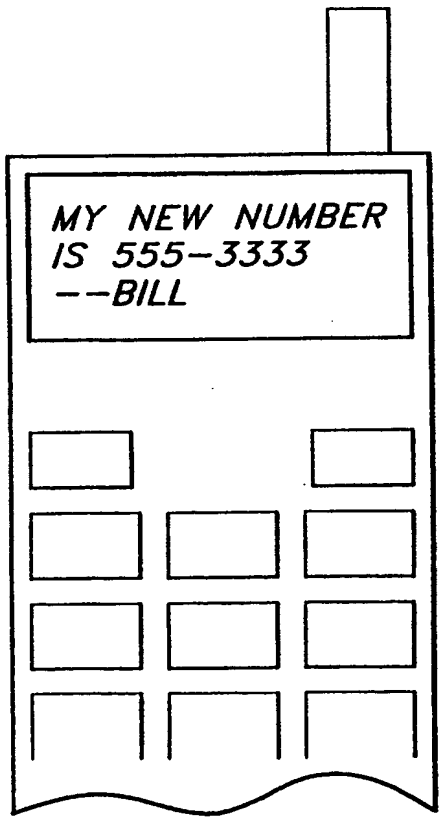

Fig.2

PRIOR ART

Fig.3

PRIOR ART

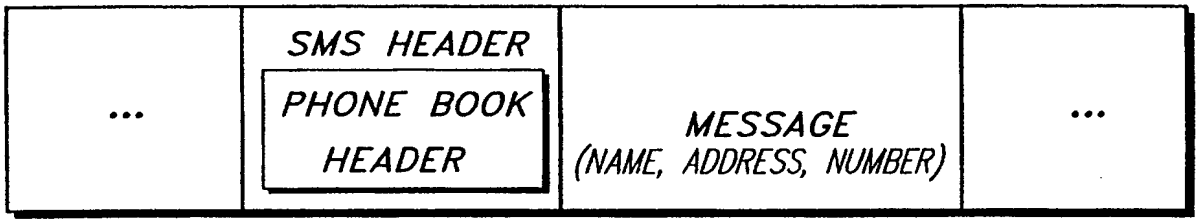

Fig.4

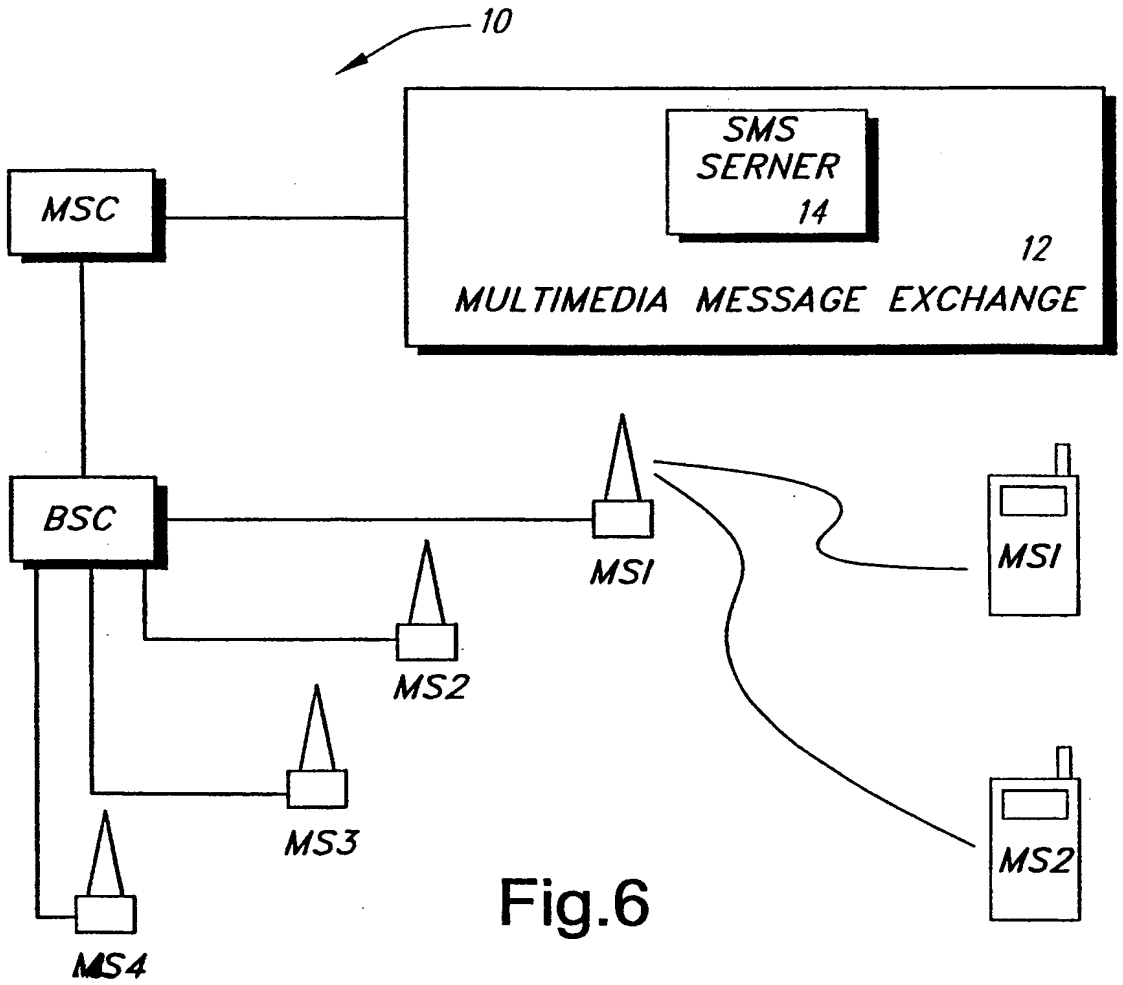

Fig.6

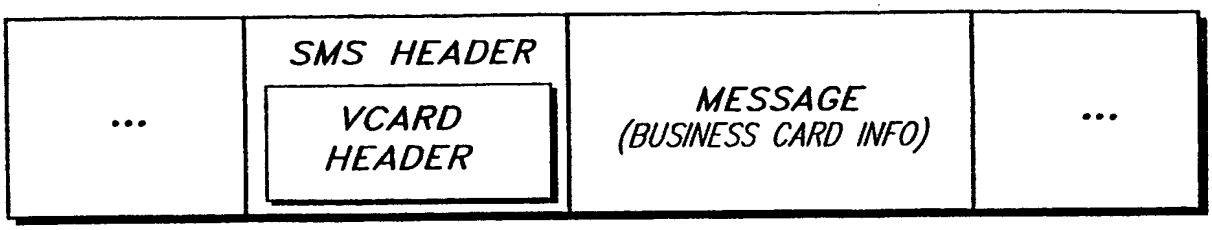

Fig.5

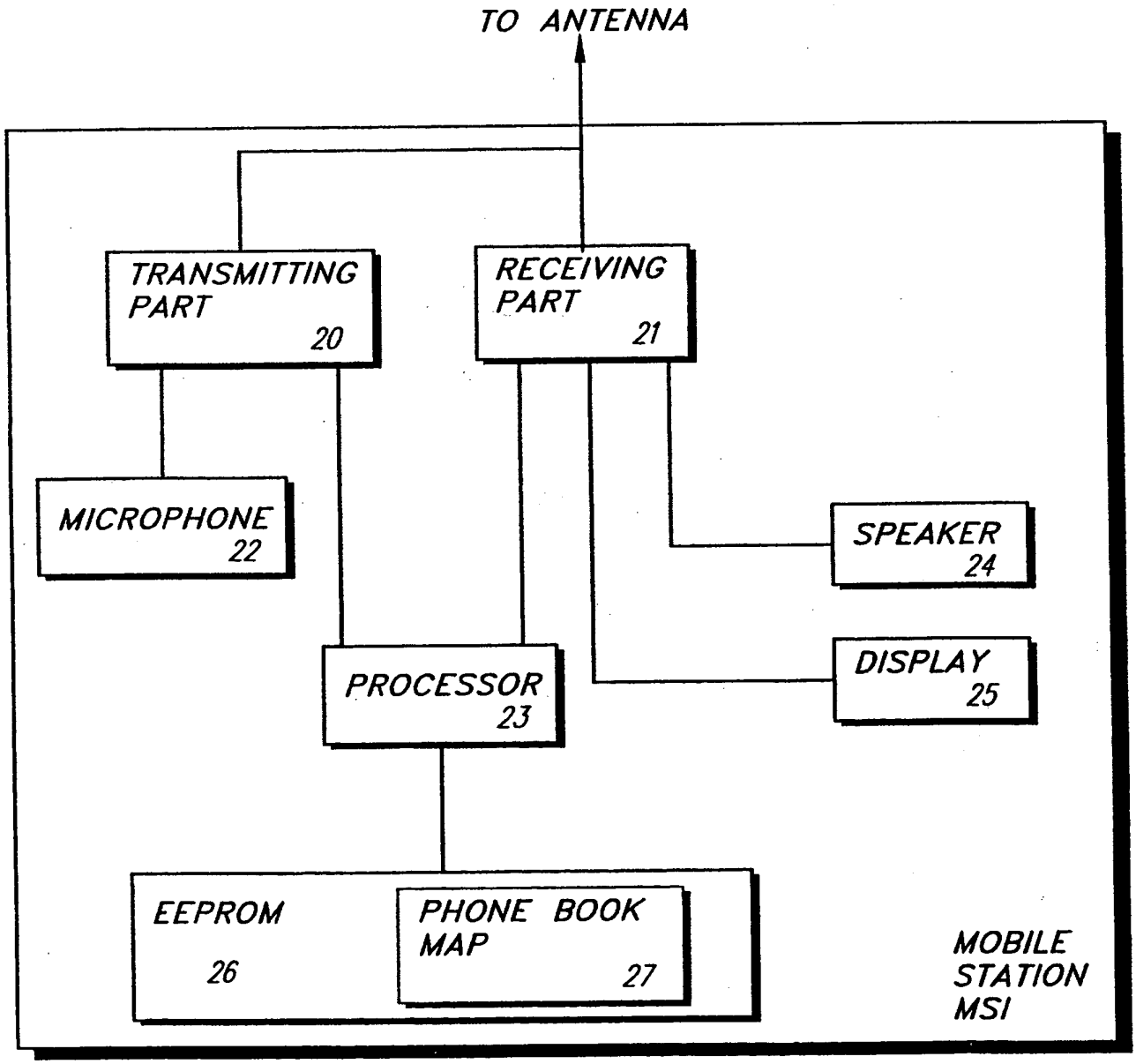

Fig.7

INTERNATIONAL SEARCH REPORT

International Application No
PCT/SE 98/02057

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04Q7/22 H04M1/274

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 5 559 862 A (BHAGAT JAI P ET AL) 24 September 1996 see column 1, line 39 - line 49 ---	1,7
A	EP 0 458 563 A (NOKIA MOBILE PHONES LTD) 27 November 1991 see claims 1,2,4,8 --- -/--	1,2,4,5, 7-10

[X] Further documents are listed in the continuation of box C.

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24 February 1999	04/03/1999

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A	GB 2 303 025 A (SAMSUNG ELECTRONICS CO LTD) 5 February 1997 see abstract; claim 1	1,7

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